INPUT®

1943 Landings Drive, Mountain View, CA 94043-9977 (415) 960-3990

March 21, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
Bond Corporation
16th Floor
26 St. George's Terrace
Perth, Western Australia 6000

Dear Paul:

First, my apologies for taking so long to respond to your request for a proposal. We are usually much more responsive, but we have been inundated with work for the past few months.

I have attached a proposal for the rest of the work for your consideration. Please view this as a working document. It is not uncommon for more work to be done on an initial proposal. I will welcome any suggestions for amendments, additions, or deletions.

I will be looking forward to your response at your earliest convenience.

I appreciate your giving us this opportunity to propose performing services for you, and I am confident that if you select INPUT, you will be pleased with the work.

Sincerely yours,

Kenneth R. Churilla
Principal Consultant

Input -
Prop. (ca.)

A PROPOSAL

FOR

VARIOUS RESEARCH AND MANAGEMENT TASKS

TO BE PERFORMED FOR THE BOND CORPORATION

IN THE UNITED STATES

SUBMITTED TO:

Bond Corporation

MARCH 21, 1988

BY

INPUT
1280 Villa Street
Mountain View, California 94041-1194
(415) 961-3300
Telex 171407
FAX (415) 961-3966

BACKGROUND

Bond Corporation has expanded its business interest in the United States through its acquisition of Heileman Brewery. As a result, Bond Corporation feels it needs expert assistance by a consulting firm in the area of Information Systems.

INPUT is a major market research and consulting firm that specializes in the field of Information Systems.

Bond Corporation is seeking assistance from INPUT in the management of its information systems in the United States.

PURPOSE

The purpose of this proposal is for INPUT to provide a variety of services in support of Bond Corporations Information Systems activities in the United States.

OBJECTIVES

TASK 1.

- Investigate AS product to see if it can run on a 4381 or 9370. If not, make recommendations on what they should use.

TASK 2.

- Identify and suggest selection of two information analyst consultants to work in La Crosse for three months.

TASK 3.

- Watching briefs on Marketing Information area.

TASK 4.

- Evaluate "What's Best" Dos environment to improve performance.

TASK 5.

- Find consultant to assist in production optimization.

METHODOLOGY:

TASK 1.

- Investigate AS product to see if it can run on a 4381 or 9370. If not, make recommendations on what they should use.
    - Procure information from Bond Corporation in Australia on product specifications, applications, and requirements.
    - Review software operating requirements with vendor and 4381 and 9370 capabilities and capacities with IBM.
- Provide report of findings and recommendations to Bond.

TASK 2.

- Identify and suggest selection of two information analyst consultants to work in La Crosse for three months.
- Interview Paul Ricker by telephone to obtain background information on needs for information analysts.
    - Develop preliminary job specifications and candidate qualifications.
- Visit and interview Information Systems management at Heileman in La Crosse to determine qualifications required for Information Analysts.
- Research in house vendor and subject files to identify industry experts, possible candidates, or sources for candidates.
- Review requirements with senior staff to identify other candidates and sources of information.
- Interview key contacts to identify potential candidates.
- Interview professional services firms and Information Systems consulting firms to identify potential candidates.
- Interview and screen candidates for position.
- Submit a report reviewing best candidates with recommendations to Bond for approval.
- Hire candidates on behalf of Bond Corporation.

TASK 3.

- Prepare watching brief on activities concerning Marketing Information System to keep Bond informed on the progress of the conversion process and any problems that occur. Recommend solutions to problems.

- Each watching brief will entail the following:

  - A visit by a senior consultant from INPUT to the management of Heileman's and the independent information analysts.

  - Review progress and problems with all concerned.

- Write a report of the status of the project that will include an assessment of the situation and recommendations which will be submitted to Bond.

- Communicate by telephone with Bond regarding any urgent situations or items requiring interactive review.

TASK 4.

- Determine if alternative hardware is available to improve processing speed of the "What's Best" software. It is our understanding that the software requires IBM PC DOS or a highly compatible product.

  - Investigate and recommend hardware platform.

  - If a satisfactory hardware solution cannot be found investigate alternative software. We understand that this is a linear programming model using the revised simplex method, so a number of alternative software products should be available on a number of hardware platforms.

- Provide a written report of findings and recommendations to Bond.

TASK 5.

- Find consultant to assist in production optimization in La Crosse.

  - Determine requirements

  - Specify qualifications and find candidate.

- Submit a written report of recommendations to Bond.

DELIVERABLES

INPUT will provide the services described under methodology.

INPUT'S QUALIFICATIONS

INPUT has extensive experience serving major vendors in the information service industry as well as major MIS organizations.

INPUT also conducts approximately 100 custom and market research engagements annually, many of these focus on customer service support issues.

In the course of both program and custom research, INPUT conducts over 10,000 interviews annually.

INPUT has conducted numerous studies in the past on software products and markets.

INPUT has also conducted many studies on software pricing, distribution, sales, and terms and conditions of sales.

INPUT's Market Analysis Service is a long established research program that continually studies the vendors and users of computer software as well as other computer services.

INPUT's Company Analysis and Monitoring Service tracks all software vendors and maintains files and publishes company highlights on all the major software vendors.

STAFFING

Mr. R. Dennis Wayson will have overall responsibility for the research and consulting project. A brief description of the personnel who will work on the project follows:

R. Dennis Wayson - In his position as Vice President of Research, Mr. Wayson directs all U.S. based research staff in support of INPUT's vendor and user oriented programs and client support. He also holds responsibility for the delivery of all activities on a corporate-wide basis. As a member of INPUT's senior management team, Mr. Wayson is a key player in INPUT's corporate planning process and provides leadership in establishing new products and services.

Mr. Wayson brings to INPUT and its clients more than 20 years of experience in the management and planning of information systems. His experience includes executive positions in the management of systems development, data processing operations and office systems. Denny joined INPUT from Bank of America where his responsibilities included the management of user based systems on a worldwide basis.

In his previous assignment as Director of Information Systems Development & Technology at Sun Company Inc., Denny held responsibility for technology planning, corporate systems development and the systems planning process.

Denny has served as a guest speaker at numerous conferences and educational institutions. Recent engagements include the IBM European Center, MIT, and the IBM National Conference on Office Systems. In addition, he has served as a member of the board of the Center for Information Systems Research at MIT.

Mr. Wayson holds a Master's Degree in Operations Research and Computer Science from Cornell University and completed his undergraduate education at Lehigh University. He attended the Columbia Program in Business Administration in 1981.

Douglas (Doug) H. Tayler - Mr. Tayler is a Principal Consultant and Director of the Information Systems Program. He has twenty years of experience in the manufacturing, distribution, information systems, and information services industries.

Doug's involvement with computing technology has ranged from application development to strategic planning and has included executive management in both IS user and vendor product development.

Mr. Tayler brings to INPUT and its clients a broad background in the planning and implementation of computing technology in industry, and in the development of Information Systems professionals.

Doug has served as the senior Information Systems executive for three Fortune 500 companies; two in manufacturing (Cummins Engine Company and Envirotech Corporation) and one in the financial services industries (ITEL Corporation). His involvement with application development started in 1973 with on-line data base systems and large integrated IBM based information networks.

Most recently he has served as Vice President of Product and Business Development for Deltak, Inc., the leading developer of technology training for the information systems profession and with Intellisance Corporation, a leader in the development of computer based technology and courseware.

Mr. Tayler holds a Master Degree in Business Administration and a Bachelors of Science in Mechanical Engineering. Both are from the University of Michigan.

Alex Graham - Mr. Graham is a Principal Consultant who specializes in Telecommunications. He has twenty years of senior management experience in voice and data network management, planning, systems development, consulting and marketing of telecommunications services. His experience spans telecommunications technology from network design to management planning and has included research and consulting in systems services. Alex also has experience in strategic planning and development of customer support programs to improve operating quality.

As General Manager for an international research and consulting firm, he planned and implemented national voice messaging services oriented to cellular phone users. As a senior consultant with Arthur D. Little, He prepared a management plan for expansion of corporate network to seven Asian countries. He also developed strategic operations plans for telecommunications services to support new financial services organization.

As General Manager for Visa International, Mr. Graham established and operated a regional office to market and provide network services throughout Asia. He managed preliminary planning for a satellite system to provide video, text and domestic and international conference services between 65 locations. He had additional responsibility for operational planning for network serving 50 countries.

Mr. Graham holds a graduate degree in International Management from the American Graduate School for International Management and an undergraduate degree in business and marketing from Grove City College in Pennsylvania.

Kenneth R. Churilla - Mr. Churilla, a Principal Consultant, has more than 12 years of experience in the computer services industry and has 5 years of market research management experience. He has directed over two dozen major research studies on the computer industry. His experience includes strategic planning, product planning, product pricing, acquisition analysis, software license arrangements, and competitive analysis for the information processing industry. Prior to joining INPUT, Mr. Churilla was a vice president with a major market research firm, held management positions with Tymshare, and was a director of data processing for a member firm of the New York Stock Exchange. He started his career as a marketing representative with IBM. He earned a B.A. degree from the University of Connecticut.

Robert L. Goodwin - Mr. Goodwin, a Principal Consultant, has more than twenty five years of successful marketing and management experience in the computer equipment, remote processing services and software industries. Bob's qualifications piloted him to Director of Marketing for Xerox Computer Services in support of all field sales and support activities. IBM utilized Bob's skills as Assistant District Manager to support the field sales staff with planning and development information. Most recently he has served as President of COMMAND DATA SYSTEMS, a public software and turnkey systems vendor. With Bob's leadership and marketing strategy, CDS became a highly visible and respected vertical market leader.

SCHEDULE

INPUT proposes to complete the research and provide Bond Corporation with all of the deliverables within fifteen weeks after commencing the research. INPUT would be ready to commence work within two weeks of authorization.

FEE

It is not possible to quote a firm fee for this work because there are too many unknown variables, therefore INPUT will quote this work on a per diem basis. INPUT's professional fee will be $1,500 per day. In addition to the professional fee, there will be out-of-pocket expenses (travel, telephone, production, etc.) which will be billed on a cost basis.

INPUT estimates that the following cost will be associated with each of the tasks.

Task 1 - $5,000.

Task 2 - From $10,000 to $15,000.

Task 3 - $7,500 per brief. Estimate that four briefs will be required for a total cost of about $30,000.

Task 4 - $1,500 to $4,500.

Task 5 - From $7,500 to $10,000.

INPUT requires that a retainer of $10,000 be paid before commencing work. The remaining fees plus expenses will be invoiced on a monthly basis, payable net 10 days.

DURATION OF THIS PROPOSAL'S VALIDITY

The terms of this proposal will remain valid for 30 days, unless extended in writing.

AUTHORIZATION

Authorization of this proposal shall have been completed upon the acceptance of the proposal signed by Bond Corporation and Bond Corporation's initial payment by an authorized officer of INPUT.

AUTHORIZED BY: Bond Corporation	ACCEPTED BY: INPUT
______________________ SIGNATURE	______________________ SIGNATURE
______________________ TITLE	______________________ TITLE
______________________ DATE	______________________ DATE

INPUT

1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

FAX TRANSMITTAL FORM

DESTINATION: Bond Corporation

FAX NUMBER: 011 61 9 325 4156

ATTENTION: Paul Ricker

Telephone Number/Location 09 325 4555

NUMBER OF PAGES: 1 of 11

CONFIDENTIAL YES X NO ___

URGENT YES X NO ___

DESCRIPTION: Proposal From INPUT

****

FROM: Ken Churilla

DATE: 3/21/88

INPUT
Project Charge Code: ZSAL

FILE: X CHRON X CONTACT ___ OTHER

Specify: ___

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✓ [illegible]
[illegible]
[illegible]

February 24, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
Bond Corporation
16th Floor
26 St. George's Terrace
Perth, Western Australia 6000

Dear Paul:

In order to complete the study of Pacific Monolithics by March 4, we will need your authorization **today** to commence research on the project. If you would like us to perform this work for you, please sign the attached agreement and FAX it to us at your earliest convenience.

You may make the payment for this research by wire transfer to our bank account at the Bank of America, Palo Alto Main Office No. 0177, 530 Lytton Avenue, Palo Alto, CA., 94301, USA. The account is in the name of INPUT, Inc. and the account number is 01178-06293.

A proposal for the remaining projects will follow shortly.

Sincerely yours,

Kenneth R. Churilla
Principal Consultant

INPUT

1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

AGREEMENT

INPUT will transmit via FAX on Friday (US date), March 4, 1988 a 20 page report on Pacific Monolithics of Sunnyvale, CA. to Bond Corporation. This report will be a management brief assessing the strengths and weaknesses of the Pacific Monolithics and its prospects for success. Issues that will be examined will include markets for the products, competition, and capabilities required for success.

INPUT will interview at least 10 persons which will include:

- Executives of Pacific Monolithics
- Customers of Pacific Monolithics
- Competitors of Pacific Monolithics
- Industry experts

INPUT will review published information on the company and its type of products that it has in its research files and from other sources such as the Stanford Business Library and electronic data bases.

Bond Corporation agrees to pay INPUT $12,000 for this report. Payment will be due upon authorization of this project by the Bond Corporation.

Agreed to by Bond Corporation:	Agreed to by INPUT:
Signature	Signature
Title	Title
Date	Date

INPUT
1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

February 23, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
Bond Corporation
16th Floor
26 St. George's Terrace
Perth, Western Australia 6000

Dear Paul:

Peter Cunningham has asked me to prepare a proposal for performing the work you discussed with him on your visit here. I am in the process of preparing the proposal. It would be helpful to me if you could answer a few questions regarding the projects. I will be able to fax the proposal to you within one day of the receipt of your answers.

1) Is there a deadline on when you need the analysis of Pacific Monolithic? If so, what is that date?

2) What are the applications for which IBM's AS product are being used?

3) Who is the vendor that sells "What's Best"?

4) Can we contact your people in La Crosse in regards to questions 2 and 3? If so, who should our contact be? Do you have any guidelines or qualifiers for our interfacing with the La Crosse people?

5) We intend to bid the various projects on a time and materials basis while providing you with estimates for each phase of the work, does this cause you any problems?

Thanking you in advance for your assistance.

Sincerely yours,

Kenneth R. Churilla
Principal Consultant

MEMORANDUM

DATE: May 26, 1988

TO: Sheila

FROM: Doug

SUBJECT: Project ZBON

cc: Denny White, Ken

Backup to Library 5/26/88

We have received confirmation from the client, Bond Corporation, that the requirements of Project ZBON have been satisfactorily completed. Based on consultation with Ken, the client should be charged three and one-half senior days for the work performed.

Would you please see that the invoice is submitted.

Thank you.

Prop. File

INPUT

1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

May 23, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
BOND CORPORATION
16th Floor
26 St. George's Terrace
Perth, Western Australia 6000

Dear Paul:

On April 25, INPUT provided its report on IBM's Application System and on May 10, a letter documenting further findings concerning this product. In the May 10 letter, I asked for a confirmation of receipt of these two communications.

As of today the confirmation has not been received and perhaps the request was overlooked. I trust that both communications have been received and would ask that you confirm by return message. I further trust that you found the information useful. INPUT remains available to assist you in your endeavors.

Sincerely,

Douglas H. Taylor

Douglas H. Taylor
Director, Information Systems Program

P.S. Letter sent by Facsimile with confirming copy by mail.

cc: Ken Churilla

MAY 23 1988
MOUNTAIN VIEW

BOND CORPORATION HOLDINGS LIMITED
Incorporated in Western Australia

GROUP INFORMATION
& TECHNOLOGY
16th Floor
26 St George's Terrace Perth
Western Australia 6000

Telephone (09) 325 4555
Telex AA92901 BONDCOR
Fax (09) 325 4156

HEAD OFFICE
[illegible]

17 May 1988

Mr. D M Tayler
Director, Information Systems Program
INPUT
1280 Villa Street
Mountain View
CA 94041-1194
USA

Dear Doug,

Thank you very much for your AS report received recently and the efforts afforded in compiling it. I also confirm receipt by facsimile of your letter and report sent on 25 April.

Yours sincerely,

Paul E Ricker

Paul E. Ricker
General Manager
Group Information Technology

cc: Ken Churilla

Prof. File

INPUT®

1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

May 10, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
BOND CORPORATION
16th Floor
26 St. George's Terrace
Pert, Western Australia 6000

Dear Paul:

As indicated in our report, transmitted April 25, 1988, I have discussed IBM's Application System (AS) with the individual who heads the GUIDE Application System Committee. As you probably know, GUIDE serves as an interface to IBM concerning product problems and enhancements.

The committee chairman works for a U.S. tire manufacturer that has used AS for over three years. They operate AS on a 3090 computer under VM. His comments follow:

> AS performance criticism is somewhat unfounded. He has yet to find an AS user that can not reasonably address the performance difficulties experienced. They are using AS with GDDM for graphics and are satisfied with the performance.
>
> The GUIDE AS committee operates a newsletter that goes to 350 companies. He believes that the AS installed base is closer to 300 versus the previously reported 140. GUIDE currently has over 200 improvement requests in front of IBM.

His experience with AS started with the project management module which is the reason AS was purchased. While they found it user unfriendly, they developed a customized front end to the project management system using AS that addressed the problem. His company also uses AS to support user driven decision support systems activities. (It was noted that AS does not have a Cellular spreadsheet capability, but neither do most fourth generation languages.)

Support from IBM has been a problem until about a year ago when AS became a strategic IBM product. It still varies by area, however, there is an active AS users group in the Chicago that Heileman could draw on.

Concerning training he noted that until recently you were dependent on costly IBM classroom instruction. Now Crwth and Applied Learning International (formerly Deltak) are releasing computer based training course on AS. He has reviewed the Deltak version and feels it will do a good job with end user training.

Recognizing this individuals probable bias towards AS, the above is still a positive report. It appears that AS is maturing as an application development and management tool, and increasing its penetration.

This concludes INPUT's planned activities relative to the Application System from IBM. Please acknowledge receipt of this letter and the report sent by facsimile and courier on April 25.

INPUT remains ready to undertake the other tasks in the original proposal when required.

Sincerely,

Douglas H. Tayler

Douglas H. Tayler
Director, Information Systems Program

cc: Ken Churilla

INPUT
1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

FAX TRANSMITTAL FORM

DESTINATION: Bond Corporation

FAX NUMBER: 011 61 2 221 3157

ATTENTION:

Telephone Number/Location

NUMBER OF PAGES: 1 of 3

CONFIDENTIAL YES____ NO____

URGENT YES____ NO____

DESCRIPTION:

We are unable to fax
your Perth office - Please
forward to Mr. Paul Ricker.
Regards,

****

FROM: Doug Tayler

DATE: 5-10-88

INPUT
Project Charge Code: ________

FILE: ____CHRON ____CONTACT ____OTHER

Specify: __________

✓ proj file

INPUT®

1280 Villa Street, Mountain View, CA 94041-1194 (415) 961-3300
Telex 171407 FAX (415) 961-3966

April 25, 1988

Mr. Paul Ricker
General Manager
Group Information Technology
Technology Division
Bond Corporation
16th Floor
26 St. George's Terrace
Pert, Western Australia 6000

Dear Paul:

INPUT is pleased to provide the enclosed assessment of IBM's Application System (AS). Our objective has been to identify and assess those aspects of AS pertinent to its possible use by Heileman Breweries, a subsidiary of Bond Corporation.

To this end INPUT interviewed a group of US companies currently using AS, making a direct effort to select companies whose information systems environment and use of AS might mirror that of Heileman.

One desired contact and interview has not been made. That is an interview with the individual who heads the Application System Committee of Guide. We will proceed to do this the week of May 11, 1988 unless you indicate that is not required.

The report has been transited to you by facsimile with a confirming copy by mail.

INPUT remains prepared to support your requirements relative to Heileman's information systems plans. Should you wish further information concerning AS we will be pleased to respond.

Sincerely,

Douglas H. Tayler
Director, Information Systems Program

cc: Ken Churilla

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PROJECT:ZBON - BOND CORP CUSTOM                 INPUT - USA --- 1988                                                          PAGE   132
LEADER:WHITE, DENNIS                            PROJECT REPORT BY LABOR CODE AND EMPLOYEE                                 05/20/88  22:01
BEG: 03-01-88   END: 12-31-88                   PERIOD: 21  ENDING 05-20-88

                                    - - - - - - - - - - - - - - - - - - - - - - - PERSON  DAYS - - - - - - - - - - - - - - - - - - - - - - - - - -
                                    ----------PERIOD 21---------  ----------------MAY------------------  ---------------PROJECT-----------------
                                        ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
    314  PARKS, JUDY                                                      .1        .1                            .1        .1
10  GENERAL                                                               .1        .1                            .1        .1

         -BUDGET-                                                                                                                  3.3       3.3
    451  TAYLER, DOUG                                                     .5        .5                           1.2       1.2
70  RESEARCH                                                              .5        .5                           1.2       1.2       3.3       3.3

ZBON  BOND CORP CUSTOM                                                    .7        .7                           1.4       1.4       3.3       3.3
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                                          ----------PERIOD 18--------- ---------------APRIL------------------ ---------------PROJECT----------------
                                              ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
          -BUDGET-                                                                                                                        3.3       3.3
    451  TAYLER, DOUG                                                           .6        .6                              .6        .6
70  RESEARCH                                                                    .6        .6                              .6        .6       3.3       3.3


ZBON  BOND CORP CUSTOM                                                          .6        .6                              .6        .6       3.3       3.3
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                                        -----------PERIOD 22----------------------------MAY-------------------------------PROJECT-----------------
                                            ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
          -BUDGET-                                                                                                                    15.0      15.0
    451  TAYLER, DOUG                                                                                            1.1       1.1
70  RESEARCH                                                                                                     1.1       1.1      15.0      15.0

ZBN1  BOND CUSTOM #2                                                                                             1.1       1.1      15.0      15.0
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                                          ----------PERIOD 22--------- ---------------MAY------------------- ---------------PROJECT---------------
                                              ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
    314  PARKS, JUDY                                                              .1        .1                            .1        .1
10  GENERAL                                                                       .1        .1                            .1        .1

          -BUDGET-                                                                                                                             3.3       3.3
    451  TAYLER, DOUG                                                             .5        .5                           1.2       1.2
70  RESEARCH                                                                      .5        .5                           1.2       1.2       3.3       3.3

ZBON  BOND CORP CUSTOM                                                            .7        .7                           1.4       1.4       3.3       3.3
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PROJECT:YB01 - BOND ADD ON CUSTOM                 INPUT - USA --- 1988                                                                     PAGE   113
LEADER:STIGLER, BUDDY                             PROJECT REPORT BY LABOR CODE AND EMPLOYEE                                           05/31/88  22:06
BEG: 05-06-88   END: 12-31-88                     PERIOD: 22  ENDING 05-27-88

                                          - - - - - - - - - - - - - - - - - - - - - - PERSON  DAYS - - - - - - - - - - - - - - - - - - - - - - - - - -
                                          ----------PERIOD 22---------  ---------------MAY--------------------  ---------------PROJECT----------------
                                            ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
    378  STIGLER, BUDDY                                                      3.0       2.1                           3.0       2.1
70  RESEARCH                                                                 3.0       2.1                           3.0       2.1

YB01  BOND ADD ON CUSTOM                                                     3.0       2.1                           3.0       2.1
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                                                                                                                    PAGE   131
PROJECT:ZBN1 - BOND CUSTOM #2                   INPUT - USA --- 1988
LEADER:WHITE, DENNIS                            PROJECT REPORT BY LABOR CODE AND EMPLOYEE                     05/20/88  22:01
BEG: 03-01-88   END: 12-31-88                   PERIOD: 21  ENDING 05-20-88

                                         - - - - - - - - - - - - - - - - - - PERSON  DAYS - - - - - - - - - - - - - - - - - - - -
                                         ----------PERIOD 21---------  ---------------MAY----------------------  ---------------PROJECT----------------
                                           ACTUAL     ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
                                                                                                                                      15.0      15.0
        -BUDGET-                                                                                                     1.1       1.1
    451  TAYLER, DOUG                                                                                                1.1       1.1    15.0      15.0
70  RESEARCH

                                                                                                                     1.1       1.1    15.0      15.0
ZBN1  BOND CUSTOM #2
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                                        - - - - - - - - - - - - - - - - - - - - - - PERSON  DAYS - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                        ----------PERIOD 18---------  ---------------APRIL------------------  ---------------PROJECT------------------
                                            ACTUAL      ESMD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN    ACTUAL      ESMD   PLAN TD      PLAN
          -BUDGET-                                                                                                                  15.0      15.0
    451  TAYLER, DOUG                          1.1       1.1                 1.1       1.1                           1.1       1.1
70  RESEARCH                                   1.1       1.1                 1.1       1.1                           1.1       1.1      15.0      15.0

ZBN1  BOND CUSTOM #2                           1.1       1.1                 1.1       1.1                           1.1       1.1      15.0      15.0
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PROJECT:ZBN1 - BOND CUSTOM #2                     INPUT - USA --- 1988                                                           PAGE    139
LEADER:CHURILLA, KEN                              PROJECT REPORT BY LABOR CODE AND EMPLOYEE                                  04/04/88  22:02
BEG: 03-01-88   END: 12-31-88                     PERIOD: 14  ENDING 04-01-88

                                         - - - - - - - - - - - - - - - - - - - - - - PERSON  DAYS - - - - - - - - - - - - - - - - - - - - - - - -
                                         ----------PERIOD 14--------- ----------------MARCH----------------- ---------------PROJECT---------------
_______________________________________  ___ACTUAL ____ESMD ____PLAN ___ACTUAL ____ESMD PLAN_TD ____PLAN ___ACTUAL ____ESMD PLAN_TD ____PLAN
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ASSESSMENT OF IBM'S APPLICATION SYSTEM
FOR
BOND CORPORATION

INPUT

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4/28/88

OUTLINE

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I. Objective

INPUT on behalf of Bond Corporation has investigated IBM's Application System (AS) relative to its planned use by Heileman Breweries, a subsidiary of Bond. The investigation focused on the capabilities of the product, performance characteristics, and experience of a small number of users of AS.

II. Approach

INPUT's assessment is based on the knowledge of the product, both in its U.S. and U.K. staff, contacts with IBM and, most importantly, interviews with six firms currently using AS.

Each of the interviews was with the manager within the Information Systems function directly involved with the implementation of AS. In two instances the manager of operations was also interviewed. The interview addressed the following topics:

- Installation environment
- Length of use
- Capabilities of AS
- Performance experience
- Use (Application) of AS

All of those interviewed had been using AS for at least a year. They were running Release 4 and some were preparing to install Release 5.

The six companies included four 43XX users and two 3090 users. The companies included a utility, a furniture company, an insurance firm, a Fortune 500 size dairy company, and two services companies.

III. Product Considerations

This section is not intended to describe AS in detail, but to report findings concerning the products installed base, general characteristics and other items of note relative to Heileman's possible use.

Application System was developed by IBM in the United Kingdom. It is supported by a software development lab in Warwick, England and is far more popular in Europe than the United States.

* INPUT estimates the European installed base to be in excess of 1000, while the U.S. installed base is only 140.

* This installed base can be compared to FOCUS (Information Builders, Inc) with a corresponding U.S. installed base of over 1000. FOCUS is believed to be the Fourth Generation Language (4GL) with the largest IBM (43XX and 30XX) installed base.

* AS's level of popularity is closer to that of Nomad II, a 4GL that has been in use in the timesharing arena for many years, but like AS was a late entry in the software products market.

* Of the 140 reported installations in the U.S. approximately 78 are on 43XX size computers and 62 are on 30XXs.

The relatively low popularity can be attributed to AS being an IBM application development tool, an area where IBM's reputation is not strong; its development in the U.K. with a low US support level; and its late entry in the U.S. 4GL market.

One of the attractions of AS is that it includes some application modules within the base product. The standard AS product contains both a statistical package and a project management application. To a smaller IS function the ability to obtain more than a 4GL provides a strong financial inducement.

* The statistical package was described as doing all the typical user will ever need, thus it is an affordable alternative to SAS.

* Two of the companies interviewed had justified AS, at least to a major degree, on the basis of the project management module and were using it within IS.

AS is considered an application development tool as opposed to an end user tool. The dominant use in the companies interviewed is by the application development staff. Either the end user is offered another product or is using AS in a controlled fashion after much training.

- This orientation is supported by the way in which IBM originally positioned the product.

- The existence of the project management module can be explained as an inducement to the application development manager to acquire and use AS.

AS's principle data interfaces are to SQL, DB2 and flat file structures (VSAM). It does not directly interface to any hierarchical data base structures(DL/1, etc). This is probably a factor in its low popularity and in the reported performance concerns.

Product cost apparently varies based on size of computer. Purchase prices of $70,000 for 43XX versus $115,000 for a 3090 site were noted. In addition apparently AS is marketed under the IBM "Solution Packs" concept in conjunction with DisplayWrite 4 and Profs. The result is a cost savings if all products are desired.

IV. Performance Considerations

Application System operates in both MVS and VM environments. The comments concerning performance did not vary significantly from VM to MVS.

Of the six users interviewed four are using AS on a 43XX size computer and two on a 3090. Three are using it in a VM environment and three under MVS. Usage levels varied from five to as high as twenty-five concurrent users with plans to go much higher.

Five of the six companies interviewed indicated performance was a concern. In two instances the comments were verified by interviewing the data center operations manager. All have been using AS for over a year and have no plans to restrict or stop using AS. In fact all companies planned to expand use of AS.

- A meter tracking system developed by a utility can have 20 or more concurrent users on an AS application that updates a DB2 data base. Even on a 3090 there is a measurable utilization impact. However, it is likely DB2 is contributing to the performance situation.

- One company is allowing end users to extract data from fairly large (100,000 plus records) files with AS on a 4381 under VM/CMS. They have had to turn this type of request into essentially a single thread batch process. The end user can go back to other AS activities, but must wait two to three hours for the data extract.

* AS works with GDDM for graphics. One client installed it with GDDM and had major performance problems. After removing GDDM performance was acceptable.

* One company with 20 to 25 concurrent users, including 10 dedicated programmers, has had AS consume 40% of the available cycles from a 4381 running VM, but did not feel the performance degradation was excessive. They operate VSE under VM as well and their current performance issues are more VSE related.

* There were no reported installations on a 9370, however, the 9370 will support AS under VM. Given the departmental and network node orientation of the 9370 this would only seem appropriate in where the number of concurrent users was less than 10..

* Each company indicated tuning was part of the AS story and that finding a local IBM AS expert can be a challenge.

The performance story on AS is very similar to that of most 4GL products. It is a concern, AS is an interactive environment and AS was not designed for end users.

V. Product Use

The consensus of those interviewed is that AS is an application development product that appeals to the development staff more than the end user. It was created by IBM to serve IS and has been adapted for end user use by IBM simply to have a product to sell.

The attractions include the integrated project management package that was the justification in two instances for the purchase of AS. The fact that this capability is included further indicates that AS was designed for the application development staff. These two users are satisfied with the project management module and are using it to control their development process.

Only two of the users commented on the statistical module. Both felt it increased the attractiveness of AS since it eliminates the requirement for SAS (SAS Institute) or the equivalent. There was a negative comment about the terminology used in the statistical module. Apparently it differs from that used by SAS.

In its survey INPUT found a variety of uses:

* As mentioned two are using it for project management of application development projects.

* Three are building actual applications including: a meter tracking system for a utility, a production planning and scheduling system for a dairy, and an order entry application.

- Three are using AS for end user report generation and on-line query. However, the user learning curve seems to be a problem. Two companies have developed interactive procedures within which the end user can perform his desired task, but in a constrained environment. AS seems to be a little powerful for common end user use.

It is noted that no true marketing/distribution analysis applications were found in the interview sample.

VI. Use of Application System by Heileman

INPUT's knowledge of Heileman's planned use of AS is very limited. It is believed:

- That the early focus will be in the marketing and distribution systems areas
- That the use is intended to be by end users in an adhoc versus a structured application approach.
- That the initial number of concurrent users would presumably be small, but demanding in terms of response time.
- And that the files and data may be quite extensive. Apparently Heileman markets a large number of products (over 650) through an expansive independent distribution network.

The result could be very sizeable calculation based analyzes requiring significant on demand processing power. This would raise concerns about Heileman's using AS on a 4381 let alone a 9370. Certainly the use of AS would not justify a 3090, but if Heileman is planning to move toward an IBM environment and AS is purchased, the number of users will grow and application development may begin to look to AS as a productivity tool.

While little has been said concerning alternative products to AS it is believed that FOCUS and perhaps other 4GL products have a better performance reputation. And as a rule they have improved data accessing interfaces and ease of use reputations. INPUT would suggest that some inquiry be made prior to a final decision. There is nothing inherent in AS that makes it more ideal than other products with better support.

VII. Conclusions and Recommendation

INPUT offers the following conclusions and summary thoughts.

- AS will run under VM or MVS environments on 9370, 43XX and 30XX computers. It is most commonly found in a VM environment.
- The installed base is relatively small for a 4GL and appears to be more often used in a modest versus large IS environments. There are more 43XX installations than 30XX.
- Performance is sensitive to the number of concurrent users, however, a level of ten to twenty can be supported by a 4381.
- Performance is quite sensitive to the size of the file being accessed (queried). And AS only directly interfaces to SQL, DB2 and VSAM.
- AS was developed as and remains an application developers environment first and an end user environment second. Those who use it for end user report writing and application development have found a significant training requirement and a need to set up procedures to control (guide) end user activity.

Recommendation

Based on INPUT's very limited knowledge of Heileman's use of AS and the knowledge gained from this assessment is recommended that alternative software products warrant some consideration. Presuming such an investigation has not already been made it should include:

- FOCUS (from Information Builders, Inc) and Ramis II (from On-Line Software International, Inc.), the most popular generalized 4GLs that include increased ease of use, better vendor support and improved data accessing techniques.
- EXPRESS(from Information Resources, Inc.), a relatively popular 4GL that was developed for and is most commonly used for, marketing type applications.